

A Brief History of *Nepenthes* at Longwood Gardens

By Larry Mellichamp

The following is the result of a personal interview with Mr. Patrick Nutt, Collections Foreman of tropical plants at Longwood Gardens, Kennett Square, Pennsylvania, on July 24, 1978.

Prior to 1956, the Missouri Botanical Gardens in St. Louis had perhaps the finest 20th century collection of *Nepenthes* in the world. The nucleus of their collection had come from a private donation of plants in 1918 and through hybridization and selection a large and varied array of specimens was produced. This was all done under the direction of George H. Pring. When Pring retired in 1950 he went to Longwood Gardens to work on hybridizing waterlilies. He knew that the *Nepenthes* collection at Missouri would begin to decline, and since he was a consultant at Longwood, he decided that he would try to bring them to Longwood to keep them going. Dr. Russell J. Seibert, then and now director of Longwood and Mr. Pring's son-in-law, also had a sentimental feeling for *Nepenthes*, having worked with them as a student. And so the large *Nepenthes* collection was brought to Longwood in 1956.

Pat Nutt, then a young gardener, had worked with *Nepenthes* during his stu-

dent training at Kew Gardens and the Royal Botanic Gardens at Edinburgh, Scotland, and asked to be in charge of them at Longwood. He was working at the time with Mr. Pring on waterlilies. Permission was granted; Pat Nutt inherited the collection from gardener Bruce Scott, and in 1967-68 Nutt began hybridizing the finer *Nepenthes* specimens. This turned out to be a real challenge for two reasons: first, outstanding female *Nepenthes* specimens were rare in collections, as they are now, and second, it was unpredictable when male and female plants of desirable breeding stock would flower at the same time enabling a cross to be made. Since 1955-56 efforts had been made to enlarge the collection by procuring plants from all over the world. In this country outstanding specimens were obtained from Henry Demmink, and many of the rarer female plants were donated by Harvey Dickler during 1966-69. Despite the obstacles, many hybrids were made; some had been produced earlier and some were totally new. Some examples of the Longwood hybrids are:

N. x 'Lt. L. B. Pring' (female) X *N.* x *hookeriana* (male) (Oct. 1969)
N. rafflesiana (female) X *N.* x *hookeriana* (male) (Oct. 1969)
N. x 'Lt. L. B. Pring' (female) X *N.* x *intermedia* (male)
N. x *mixta* var. *sanguinea* (female) x *N.* x *williamsii* (male) (1971 —
last hybrid produced)

Ideally a hybridization program such as this should involve raising as many seedlings as possible, evaluating them for desirable characteristics, and then selecting the best for further propagation and breeding and perhaps naming of any outstanding clones as was done by Pring

at Missouri Botanical Gardens (see Pring, 1950). Unfortunately, shortly after the major hybridization efforts of 1967-69, the U.S. economy began to fail and the energy crisis caused massive energy cut-backs to become necessary. As a result, space became more of a premium, and



Mr. Patrick Nutt and *Nepenthes* at Longwood
photo by L. Mellichamp



N. x superba



N. x superba - mixta

Photos by L. Song

time became more of a concern. Less effort was being directed towards developing and enlarging the *Nepenthes* collection as such, and more was concentrated on displaying what was already on hand. Since Longwood was not a botanical gardens *per se*, maintaining a minimum collection of the finest specimens for public display and teaching would take precedence over large scale research efforts when times got rough.

Mr. Nutt pointed out several of the problems encountered with maintaining the collection at Longwood, which could serve as advice for would-be growers: (1) Having to display the *Nepenthes* along with other plants due to space limitations meant lowering the optimum humidity levels to suit the other plants. (2) Cooler temperatures must be maintained now, which are below the optimum for finest pitcher production in some cases. (3) There is less time now for curating the *Nepenthes*, a group which requires a great deal of careful maintenance for best results. (4) Vandalism can be a problem. Some visitors like to fondle, cut, and squeeze the pitchers, in addition to pouring out the liquid. This necessitates displaying the plants in hanging baskets from the ceiling to prevent close encounters of the worst kind. (5) At one time, there was a serious outbreak of the fungus *Pestalotia* which was impossible to eradicate using normal fungicides like Benlate (which is effective on *Pythium* and other common greenhouse fungi). They finally resorted to Daconil 75-W which did the trick. Pat suggests that the growing area be kept as clean as possible, and that tools be sterilized as often as possible to prevent the spread of disease.

One of the qualities of a good plant hybridizer is his constant alertness for unexpected occurrences, such as the appearance of an unusually robust and easily propagatable specimen which, for example, could be subjected to modern tissue culture techniques which would al-

low them to be mass produced and made commercially available at a lower cost. It is important to maintain the collections that we have right now, because if future times get harder, there will be even less opportunity for hybridizing and selecting of new plants.

Longwood receives many requests for *Nepenthes* from individuals and other gardens — far too many requests to fill; the *Nepenthes* just won't grow fast enough. Longwood's policy is to provide plants (rooted cuttings) on an exchange basis. As of January 1978 the *Nepenthes* collection at Longwood consisted of the following species and hybrids:

Nepenthes alata, *N. albo-marginata*, *N. ampullaria*, *N. X balfouriana*, *N. X boissiensis*, *N. boschiana*, *N. burkei*, *N. X chelsonii*, *N. X coccinea*, *N. X dicksoniana*, *N. X dormaniana*, *N. X dyeriana*, *N. X edinensis*, *N. gracilis*, *N. gracillima*, *N. hirsuta*, *N. hookeriana*, *N. X hybrida*, *N. X intermedia*, *N. kampotiana*, *N. khasiana*, *N. X kosobe*, *N. maxima*, *N. mirabilis*, *N. X mixta* var. *sanguinea*, *N. X morganiana*, *N. X paradisiae*, *N. rafflesiana*, *N. sanguinea*, *N. spectabilis*, *N. stenophylla*, *N. X superba*, *N. thorellii*, *N. trichocarpa*, *N. ventricosa*, *N. X williamsii*, *N. X wittei*, *N. X wrigleyana*, *N. X 'Lt. R. B. Pring'*, *N. X 'St. Louis'*

The major achievement of Pat Nutt was to build up and maintain the large *Nepenthes* collection at a time when interest and expertise in growing these beautiful plants could have been lost. You have to have a dedicated and willing staff, he says, in addition to knowledgeable direction, in order to maintain and develop such a collection. Since 1970, gardener Bill Pierson has assumed most of the practical aspects of daily care and culture of the *Nepenthes* collection.

At Longwood the *Nepenthes* are utilized not only for public display, but the Chief Taxonomist, Dr. Huttleston, and other members of the staff use the specimens in their lectures and demonstrations to horticulture students in the Longwood training program. Longwood also maintains an extensive collection of color slides and photographs for use in teach-



Nepenthes williamsii
Longwood Gardens Photograph

ing and public lectures. This is all part of Longwood's outstanding educational program in horticulture which is one of the finest in the country. Mr. Nutt points out that while Longwood has the best collection of *Nepenthes* on display in America, Edinburgh's Royal Botanic Gardens probably has the finest in the world. He emphasized that it is a major undertaking for any institution to commit itself to the proper upkeep of a large collection of plants such as *Nepenthes* which require so much maintenance and care.

Finally, Mr. Nutt briefly indicated the culture conditions employed at Longwood. The growing medium generally consists of $\frac{1}{2}$ osmunda fiber and $\frac{1}{2}$ sphagnum moss and the plants are grown in wooden baskets. They fertilize every two weeks in summer with Peter's 20-20-20; and every three weeks in winter with 15-0-15. They also prefer to apply fish emulsion periodically in an effort to ensure that trace elements are provided. The plants are heavily cut back about Easter, fertilized regularly, and by the first of June good pitchers are produced. Regular pruning helps keep the plants short and stimulates them to produce luxurious pitchers instead of long vine-like stems. While different species require different temperatures depending on their native habitats, they keep the *Nepenthes* no lower than 62°F in winter (which may actually be too cold for some species). The humidity is kept as close to 80% as possible, with higher humidity being desirable if you are growing *Nepenthes* in a house by themselves. Cuttings are rooted in a mixture of peat and perlite, or peat and calcined-clay, with bottom heat of 75°F and intermittent mist. The cuttings must callous before roots are produced, at which time one must be careful not to let the fine white roots dry out or be broken. For further excellent details of culture Mr. Nutt recommends the articles by Pring and Macfarlane listed below.

For the future, Pat would like to see improvements in propagation techniques and a rejuvenation of hybridization efforts in order to perfect the difficult procedure of cross-pollinating two specimens that tend to flower at different times! He certainly has a keen interest in *Nepenthes* which is conveyed to anyone who talks with him about these very special tropical pitcher plants.

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BIBLIOGRAPHY

- Fairburn, D. C. 1943. Raising *Nepenthes* from seed. Missouri Bot. Gar. Bulletin Vol. 31, pp. 174-180.
- Macfarlane, J. M. 1916. *Nepenthes* in Bailey's Cyclopaedia of Horticulture. Vol. 2, pp. 2122-2130. (The section on culture is by G. W. Oliver).
- Pring, George H. 1943. *Nepenthes*, Missouri Botanical Garden Bulletin Vol. 31, pp. 169-174.
- Pring, George H. 1950. *Nepenthes* at the Garden. Missouri Botanical Garden Bulletin Vol. 38, pp. 27-35.

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